Patent claims

1. Artificial joint, in particular endoprosthesis for replacing natural joints, comprising at least two artificial joint parts with curved articulation faces,

where a curved contact line is formed on each of the articulation faces; the curved contact line (L1) of one of the articulation faces is part of an elliptical section contour of a first cylinder (1) or cone with the cylinder radius (R1) or respectively cone angle (α1), and the other contact line (L2) takes the form of a counter track of a second second [sic] cylinder (2) or second cone having the cylinder radius (R2) or respectively the cone angle (α2) and rolling and/or sliding on the first cylinder (1) or first cone,

where the joint is designed as a flat or spherical four-joint, whose reference plane or reference sphere, [sic] lie in the resting or moving pole curve, is chosen such that it lies between the condyles to be constructed, and where the first cylinder or cone represents the unmoved system and the other cylinder which rolls or slides represents the moved system,

where a straight contact line B, in which the moved and the unmoved system touch instantaneously, is drawn from a respective contact point (K), which lies on the curved contact lines, to a fixed chosen point Q, which belongs to the moved system or to the unmoved system and lies in a sagittal plane which is shifted to the joint interior and chosen randomly, or to the instantaneous center of revolution P on the resting or moving pole curve,

where the plurality of the contact lines B form a control face F1 of the unmoved system and a control face F2 of the moved system, and the control faces each represent one of the joint faces of one of the two sides of the four-joint,

and where the second joint side is designed accordingly.

AMENDED PAGE

2. Artificial joint according to claim 1,

   characterized in that the first and the second cylinders (1, 2) or the first and the second cones (1, 2) are arranged with respect to each other such that they form a straight dimeric joint chain having the relationship R = R2 + R1 or an overlaid dimeric joint chain having the relationship R = R2 − R1, where R is the radius of the joint's axial path of the dimeric joint chain and R1 the radius of the first cylinder (1), where in the case of the spherical arrangement, $\alpha = \alpha2 + \alpha1$ results for the first cone pair and $\alpha = \alpha2 - \alpha1$ for the second cone pair, based on the cone angles $\alpha1/\alpha2$.

3. Artificial joint according to one of claims 1 or 2, characterized in that on the side of the contact lines (L1,L2) opposite the control faces (F1, F2), the contact line (B) are [sic] extended in a curve such that toric surfaces (9, 10) are formed, where the bowed lines are defined in that at the instantaneous contact point (K) of the contact lines (L1,L2) a plane is set up in the moved and unmoved system which stretches from the respective contact lines (B) of the control faces (F1, F2) and the common perpendicular (7)

AMENDED PAGE